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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,580	06/26/2001	Toshimitsu Taniguchi	10417-085001	3310

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EXAMINER

ANYA, IGWE U

ART UNIT PAPER NUMBER

2825

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,580

Applicant(s)

TANIGUCHI ET AL.

Examiner

Igwe U. Anya

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 0503.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12. 6) ☐ Other: _____

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DETAILED ACTION

Drawings

1. Figure 17A, 17B, 17C, 18A, and 18B should be designated by a legend such as -
-Prior Art- because only that which is old is illustrated. See MPEP § 608.02(g). A
proposed drawing correction or corrected drawings are required in reply to the Office
action to avoid abandonment of the application. The objection to the drawings will not
be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1 to 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5502009) in view of Sugahara (JP Patent 40813025).

5. Lin teaches a substrate having a thin oxide layer (23) and an oxidation resistant film (24), on a first and second device formation regions (21, 22). A photoresist (200) masking the second device formation region is used to remove the oxidation resistant film on the first device formation region, removing the photoresist, removing the oxide layer above the first device formation area using the oxidation resistance film above the second device formation area as a mask (fig 2C), thermally growing a replacement oxide having a thicker film in the first device region using the oxidation resistant film on the second formation region as a mask (fig. 2D), and removing the oxidation resistant mask with any oxide above it on the second formation region without a photoresist using phosphoric acid etching, thereby leaving the thin oxide film in the second device formation area (col. 3 lines 5 – 60).

6. Lin lacks the step of removing the oxide layer on the second device formation region, and forming a new replacement oxide film by thermal oxidation.

7. However, Sugahara teaches a step of removing the oxide layer on the second device formation region subsequent to removing the oxidation resistant film on the second device formation region without a photoresist (fig. 1D) by and replacing with a new oxide layer (fig. 1E element 23) by thermal oxidation thereby avoiding contamination (abstract).

8. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Sugahara into the Lin

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reference to remove the contaminated oxide layer of the second device formation region along with the oxidation resistant film on the second device formation region without a photoresist and form a new oxide layer by thermal oxidation to enhance reliability.

9. Claims 11 and 12 are allowable over the references of record, because none of these references teaches or in combination render obvious a method comprising inter alia, implanting a second impurity layer of first conductive type having a low concentration to connect first impurity layer, and implanting a third impurity layer of first conductive type having a high concentration in the first impurity layer.

Remarks

10. The examiner has reviewed prior art in light of applicant's comments and finds it persuasive. However, Applicant's newly submitted IDS can be used in combination with the Lin reference in a U.S.C. 103 rejection.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Igwe U. Anya whose telephone number is (703) 308-3549. The examiner can normally be reached on M - F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

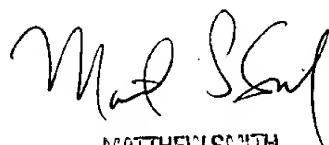
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Igwe U. Anya
Examiner
Art Unit 2825

IA

November 28, 2003


MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800